

(19)



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(11)

**EP 0 761 860 A3**

(12)

**EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:  
**27.08.1997 Bulletin 1997/35**

(51) Int Cl.<sup>6</sup>: **D05B 19/08, G05B 19/4093**

(43) Date of publication A2:  
**12.03.1997 Bulletin 1997/11**

(21) Application number: **96306137.9**

(22) Date of filing: **22.08.1996**

(84) Designated Contracting States:  
**DE ES FR GB IT**

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(30) Priority: **22.08.1995 JP 213128/95**

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**(54) Embroidery data generating system**

(57) The outline (V) of an embroidery region is determined (S3) and then a center line (MB) of the embroidery region is determined (S4). Starting from one point on the center line, a search (S5) is made for end points (BA...BD) and branch points ( $P_1, P_2$ ) on the center line. At branch points ( $P_1, P_2$ ) bisectors (BE...BJ) for spaces between branches are generated (S6) to divide the embroidery region into plural closures (S7). Near the end point, the orientation of the embroidery lines is determined (S8) to be perpendicular to the center line. Near the branch point, the orientation of the embroidery lines is determined to be parallel to a line connecting the intersection points of the bisectors and the outline. Embroidery data are obtained by a fill operation (S9), and the orientations of the respective embroidery lines are set to interpolate the above-mentioned two orientations. The needle points are determined on the outline. Near the branches, the needle points are determined on a closer side on the outline or said bisector.

FIG. 2

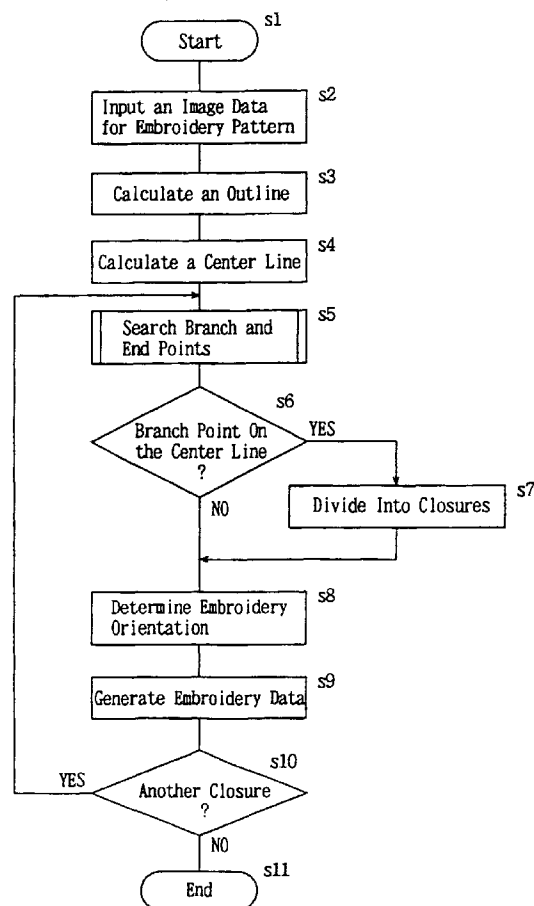
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FIG. 5 (A)

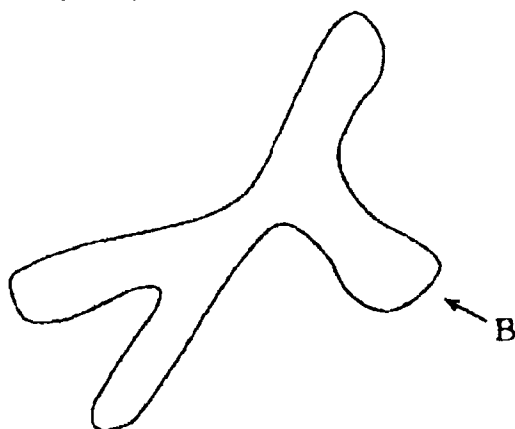


FIG. 5 (B)

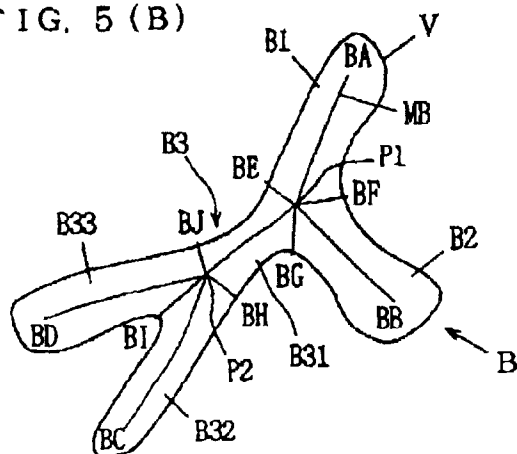
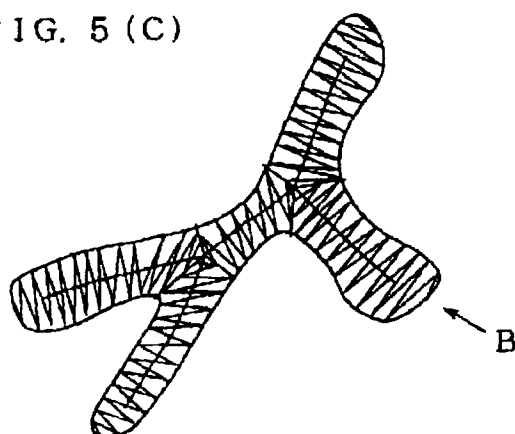


FIG. 5 (C)





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# EUROPEAN SEARCH REPORT

Application Number  
EP 96 30 6137

| DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                              |                                                  |                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|----------------------------------------------|
| Category                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Citation of document with indication, where appropriate, of relevant passages                                                                                | Relevant to claim                                | CLASSIFICATION OF THE APPLICATION (Int.Cl.6) |
| D, A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | PATENT ABSTRACTS OF JAPAN<br>vol. 017, no. 655 (C-1136), 6 December 1993<br>& JP 05 212171 A (NAKANIHON SYST:KK;OTHERS: 01), 24 August 1993,<br>* abstract * |                                                  | D05B19/08<br>G05B19/4093                     |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | DE 40 17 177 A (BROTHER IND LTD) 6<br>December 1990                                                                                                          |                                                  |                                              |
| D                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | & JP 03 000 861 A                                                                                                                                            |                                                  |                                              |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | PATENT ABSTRACTS OF JAPAN<br>vol. 016, no. 461 (C-0988), 25 September 1992<br>& JP 04 164483 A (BROTHER IND LTD), 10<br>June 1992,<br>* abstract *           |                                                  |                                              |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | PATENT ABSTRACTS OF JAPAN<br>vol. 016, no. 198 (C-0939), 13 May 1992<br>& JP 04 030893 A (MASASHI MOTOMURA), 3<br>February 1992,<br>* abstract *             |                                                  |                                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                              |                                                  | TECHNICAL FIELDS<br>SEARCHED (Int.Cl.6)      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                              |                                                  | D05B<br>G05B<br>D05C                         |
| The present search report has been drawn up for all claims                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                              |                                                  |                                              |
| Place of search<br>THE HAGUE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                              | Date of completion of the search<br>24 June 1997 | Examiner<br>D Hulster, E                     |
| <p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone<br/>Y : particularly relevant if combined with another document of the same category<br/>A : technological background<br/>O : non-written disclosure<br/>P : intermediate document</p> <p>T : theory or principle underlying the invention<br/>E : earlier patent document, but published on, or after the filing date<br/>D : document cited in the application<br/>L : document cited for other reasons<br/>&amp; : member of the same patent family, corresponding document</p> |                                                                                                                                                              |                                                  |                                              |

EPO FORM 1503 03.82 (P04C01)